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Ontario Department of Education

SYLLABUS

OF

SUMMER COURSES AND EXAMINATIONS

FOR

Teachers' Certificates

IN

Agriculture and Horticulture

1931

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SUMMER COURSES AND EXAMINATIONS FOR TEACHERS' CERTIFICATES IN AGRICULTURE AND HORTICULTURE

COURSES OF STUDY

1. The theory and the demonstration of the lecture and the laboratory will be illustrated by out-of-door practice. Most of the instruction will be of a practical nature and much of it will be given out of doors.

Each student taking Part I for the Elementary certificate will be provided with a garden for practice and observation, and shall visit it every day and keep records of work and observations. After the gardens are planted, the work in them will be carried on by the students. In some cases, the evenings will be found the most suitable time.

Students are required to keep careful records of all their work; these will be considered by the staff in their final appraisal of the student's claim for a certificate.

EQUIPMENT

2. Students are required to furnish their own working material for plant collection, etc. Such material may be bought at the College.

Students should bring pocket knives, pocket magnifying glasses, and any books which they possess and have found useful for the work in Agriculture. As a considerable amount of the work is taken out of doors, women students should provide themselves with suitable wearing apparel, e.g., walking shoes, garden hats, gloves, etc.

COURSES FOR THE CERTIFICATE IN ELEMENTARY AGRICULTURE AND HORTICULTURE

3. The following are the courses for teachers' certificates in Elementary Agriculture and Horticulture:

Part I

School Gardening: Planning and managing garden plots (each student will prepare and care for a plot); cultivating of garden plots; the school garden as a laboratory; care and use of tools; seeds and seed testing; transplanting; general vegetable gardening.

How to Grow Vegetables. French.....
The Macmillan Co., Toronto.

Field Husbandry: The principles underlying crop production; the area and distribution of the principal field crops of Ontario; a study in the experimental plots of the characteristics of cultivated plants; the importance of Experiment Station work in field crops.

Field Crops, Etheridge.....
Ginn & Co., New York.

O.A.C. Bulletins on Field Crops.....

Entomology: Characteristics and importance of insects and related animal groups; insect metamorphoses; the common orders of insects; the characteristics of these orders and a study of the common forms occurring in each; a collection of fifty insects prepared by the student and arranged into orders.

Floriculture: Propagation of flowering plants; the perennial border; the growing and management of flowering bulbs for inside use and for spring bloom; varieties of perennials, annuals and other flowering plants for special purposes.

Landscape Gardening: The laying out of home and school grounds; trees and shrubs suitable for landscape gardening; methods of propagating trees and shrubs.

Botany: Collection of at least twenty common weeds; examination and identification of weeds and weed-seeds; identification of the common native trees.

Live Stock: Lectures and practical demonstrations on breeds of cattle, horses, sheep and swine; definitions of terms relating to live stock.

Dairying: Lectures and demonstrations; care of milk; dairy equipment; plans of stables; the dairy cow and dairy breeds; composition of milk; testing for milk fat; grading of milk; butter making; cheese making; milk products.

Poultry: Breeds; candling of eggs; use of incubator; care of poultry; feeds; poultry houses.

Soils and Weather: Classification of the kinds of soil; measurements of moisture in soil; cultivation; effects of frost and air upon the elements of soil; fertility; climate; air movements; air pressures; storms; weather maps; records; forecasts; influence of weather on crop production.

Organization and Methods: Course of Study; the Regulations of the Department of Education; equipment; laboratory and class methods; management of home gardens; school fairs; plans for Winter Reading Course.

Part II

Botany: Plant diseases; identification of wild plants; study of grasses and cereals; collections of weeds and grasses; collection of at least twenty specimens of weed seed (this may be worked out between the first and second years).

Chemistry: A study of plants and their food requirements and soils; manures and fertilizers in relation to the problem of supplying these needs; the composition, digestibility and economic value of the various classes of animal foods; insecticides; fungicides and weed killers. (Lectures and laboratory work.)

Bee-keeping: Lectures with demonstrations to be taken with Part I of the Intermediate course (details given there).

Physics: Review of the work of the previous year; drainage; identification of samples of soil; farm conveniences; water systems; sewage disposal; lightning rods.

Field Husbandry: History, methods of cultivation and uses of the following cereal crops,—wheat, rye, oats, barley and corn; germination, selection and judging of seed; history and importance of the potato crop, cultural methods, uses, marketing; the improvement of cereal and forage crops through plant selection and artificial cross-pollination.

The Small Grains. Carleton.....
The Macmillan Co., Toronto.

The Cereals in America. Hunt.....
Orange Judd Co., New York.

Horticulture: General horticulture; fruit growing.

Entomology: A review of the orders of insects; natural factors in insect control; artificial methods of control; insecticides; common injurious insects in the various orders with life histories and control measures; a collection of one hundred insects prepared by the student and arranged into orders.

Bacteriology: What bacteria are and where they occur; their relation to foods, soil, water supply and infectious diseases; infection; disinfection; importance of a knowledge of bacteria in the dairy.

Organization and Methods: Report upon the school garden work of Part I; the Regulations of the Department of Education; laboratory equipment for rural schools; School Fairs; laboratory and class methods; management of home gardens.

WINTER READING COURSE

4. For the certificate in Elementary Agriculture and Horticulture, candidates are required to have read three books as follows, the first two and either of the others being obligatory:

Manual of Gardening. Bailey.....
The Macmillan Co., Toronto.

Soils, Their Properties and Management. Lyon, Phippen and Buckman.
The Macmillan Co., Toronto.

The Means and Methods of Agricultural Education. Leake.....
Houghton & Mifflin, Boston.

The American Rural School. Foght.....
The Macmillan Co., Toronto.

A written examination on the books selected will be held on Saturday of the first week of the second session.

COURSES FOR THE INTERMEDIATE CERTIFICATE IN AGRICULTURE

5. The following are the Courses and the Books of Reference for the Intermediate certificate in Agriculture.

Part I

Chemistry: Laboratory exercises on chemistry of soils and fertilizers; insecticides and fungicides; formation, composition, and reaction of soils; value of humus, barnyard manures; composition, nature, and uses of commercial fertilizers; characteristics of plants with regard to rotation.

The Chemistry of the Farm. Warrington.....
Orange Judd Co., New York.

Physics: Laboratory or field exercises, with lectures on mechanical principles involved in farm machinery; measurements of fields with chain and calculation of areas and drawings of plans; taking of levels and making plans for drainage; physical analysis of soils, determination of air and water holding capacity of different soils.

Soils, Their Properties and Management. Lyon, Phippen & Buckman.....
The Macmillan Co., Toronto.

Botany: Practical identification of weeds, weed seeds, and grasses; collections begun (see under Botany, Part II).

Weeds of Ontario. O.A.C. Bulletin No. 188.

Field, Forest and Garden Botany. Gray.....
American Book Co., New York.

Plant Diseases. Heald, Manual of Plant Diseases.....
McGraw, Hill Book Co.

Fungous Diseases of Plants. Owen, Principles of Plant Pathology.....
John Wiley & Sons.

O.A.C. Bulletins on Fungous Diseases.

Floriculture: Methods of cultivating, seeding, transplanting, treating for diseases and insect pests; wintering; propagation of cuttings; flower borders; bulb culture.

Principles of Floriculture. E. A. White.....
The Macmillan Co., Toronto.

House Plants, Their Care and Culture. Hugh Finlay.....
D. Appleton & Co.

Entomology: Characteristics of insects and related animal groups; insect metamorphoses; natural factors in insect control; artificial methods of control; insecticides; the common orders and families of insects with characteristics; the common injurious insects in the various orders and families with life histories and control measures; laboratory and field studies; a collection of one hundred insects prepared by the student and arranged into families.

Micro-Biology: Lectures and demonstrations on morphology and physiology of micro-organisms, (moulds, yeasts and bacteria); bacteriology of soil, legume cultures; bacteriology of dairy; contamination and care of milk; bacterial diseases of plants; bacteria in relation to household.

Micro-Biology. Marshall.....
Blakiston & Co.

Poultry Husbandry: Lectures and demonstrations on breeds and selection of stock, locating poultry plant, houses, incubators, brooders, feeds, marketing, diseases, ducks and geese, poultry literature. Students will also receive practical instruction in managing incubators.

Poultry Production. Lippincott, 4th Edition.....
Lea & Febiger, Philadelphia.

O.A.C. Bulletins 329 and 305.

Bee-keeping: Lectures with demonstrations; hives; handling of bees; life histories; swarming; harvesting honey; honey as a food product; seasonal management.

The A. B. C. and X. Y. Z. of Bee Culture. Root.....
Root & Co., Medina, Ohio.

Organization and Methods: Discussion of the Regulations of the Department of Education; directions and suggestions for carrying out the work in the schools.

Part II

Field Husbandry: History of agriculture; different systems of farming; different kinds of soil; rotation of crops; farm crops in their relation to drainage; application of manures; green manuring; preparation of the land for the different crops; methods of cleaning, testing, and selecting farm seeds; study of cereals, roots, fodder crops, grasses, clovers, and other farm crops; sowing, harvesting, preserving, marketing.

Elements of Agriculture. Warren.....
The Macmillan Co., Toronto.
O.A.C. Bulletins 268, 269.

Animal Husbandry: A study of the history and characteristics of the principal breeds of live stock, including light and heavy horses, beef and dairy cattle, sheep and swine; feeding and management; principles of breeding; market requirements; practical work in judging stock.

The Book of Live Stock. Toole.....
Musson Book Co., Toronto.

Soil Geology: Geological processes and soil formation; rock-disintegrating agents; structure and variation of soil.

Dairy Husbandry: The herd: formation, care and management of a dairy herd; rearing calves; dairy stables; lighting, cleaning, and ventilating; individual cow records. The milk: care of milk; elementary, chemical, and bacteriological study of milk. The home dairy: running of hand separators and care of dairy utensils; manufacture, packing, and marketing of butter; use of the lactometer and the Babcock machine.

Canadian Dairying. Dean.....
Wm. Briggs, Toronto.

Botany: Identification of plant diseases and common grasses; treatment of diseases; fungicides; a collection of weeds, grasses, and common fungous diseases, to be handed in for inspection.

Fruit Growing: Treatment of fruit plantations; cultivation, grafting, propagation, spraying, marketing; packing and packages.

The Book of Pomology. J. H. Gourlay.....
The Macmillan Co., Toronto.

Vegetable Growing: Methods of sowing and cultivating; treating for diseases and insect pests; marketing; preparation and care of hot beds and cold frames; production of early vegetables; selection of varieties.

Garden Farming. Corbett.....
Doubleday, Page & Co.

Landscape Gardening: The designing and planting of home and school grounds and of small parks. Propagation and planting, care and use of trees and shrubs for landscape effects; the making and care of a lawn.

Agricultural Economics: Relation of Agricultural Economics to the general science of Economics; the field of Agricultural Economics; the economic factors in Agricultural production; the economic laws governing such organized production, and their application to the individual farm; principles and methods of co-operation in farm work, marketing and banking.

Rural Sociology: Rural Sociology as an applied science; basic differences in rural and urban social conditions; a study of rural social organization in relation to business, population, health, recreation, means of communication, religion, social contract, home conditions, standards of living; developing a social programme for a rural community.

Organization and Methods: Discussion of the Regulations of the Department of Education; directions and suggestions for carrying out the work in the schools.

COURSES FOR THE SPECIALIST'S CERTIFICATE IN AGRICULTURE

6. The following are the Courses for the Specialist's Certificate in Agriculture, obtainable by the holders of Permanent or Interim Specialists' Certificates in Science:

(1) The two Summer School Courses for the Intermediate Certificate in Agriculture (including a course in Farm Mechanics).

(2) A third Summer School Course in the following:

Applied Science:

Botany: Plant diseases; Chemistry: soil fertility; stock foods; Bacteriology: dairy bacteriology; common diseases of farm animals.

Field Husbandry:

Seed judging, seed cleaning machines and other Experiment Station apparatus; agricultural organizations; field crops; methods of crop improvement.

Horticulture:

Vegetables; flower and fruit judging; plant breeding; methods of producing seeds of vegetables.

Animal Husbandry:

Stock judging, feeds and feeding.

Poultry:

Judging, poultry economics.

Dairying:

Butter and cheese judging, separator work and testing.

(3) A problem in research, covering at least the first year following that in which the third Summer School Course was taken.

COURSE IN FARM MECHANICS

7. The following are the subjects of the course for the certificate in Farm Mechanics, obtainable by teachers who hold or are in course of preparation for an Intermediate certificate in Agriculture; the course will be arranged to cover as far as practicable the topics which have the commonest application to farm work; suitable books of reference are given below.

(1) The use and care of common woodworking tools; making of simple objects required on the farm such as hen coop, trap nest, dog kennel, tool handles, whiffletrees, double-trees, wagon jack, feed hoppers, cold frame, wheelbarrow, saw bench, ladder, window boxes, split log drag, etc.

Preparation and reading of plans and elevations of farm buildings; construction of the simpler buildings, such as hen house, pig pen.

(2) Plans and specifications for a farm mechanics building to be erected on the school grounds or for the adaptation of a portable garage or of another building for this purpose.

(3) Simple metal work; the hand forge and the forge fire; use and care of the commoner tools; the making of simple objects such as staples, hooks, latches, chains, etc.

(4) General care and repair of farm buildings and implements; windows, fences, gates, machinery, painting, etc.

(5) Repairing harness, rope knotting and splicing.

(6) Simple concrete construction; proper mixtures for various purposes; making of fence posts, walks, troughs, etc.

Farm Shop Work. Brace and Mayne.....
American Book Co.

Agricultural Woodworking. Louis M. Roehl.....
The Bruce Publishing Co., Milwaukee, Wis.

Handy Farm Devices. Rolfe Cobleigh.....
Orange Judd Co., New York.

EXAMINATIONS

8. Practical and Written examinations will be conducted by the staff at the close of the courses of instruction. A candidate must obtain 50 per cent. of the marks assigned to each subject in order to pass.

CERTIFICATES

9. (1) (*a*) Candidates who pass the examinations and other tests of Parts I and II of the prescribed course for an Elementary certificate will be granted Interim certificates in Elementary Agriculture and Horticulture valid in a Public or Separate School.

Teachers may be granted Interim Elementary certificates in Agriculture on the completion of two Summer Courses in Agriculture or on the completion of the following courses:

1. The Lower School course in Agriculture at a High or Continuation School followed by a course at a Normal School and one Summer Session in Agriculture. Only those who have taken the Lower School course by actually attending a High or Continuation School in which Agriculture is taught in accordance with the High School Regulations and approved by the Departmental Inspector of Agriculture and Horticulture will be granted exemption from the first Summer Course. The Winter Reading Course is required of all candidates who are admitted to the second Summer Course.

2. The Lower and Middle School courses in Agriculture at a High or Continuation School followed by a course at a Normal School. Only those who have taken the Lower and Middle School courses by actually attending a High or Continuation School in which Agriculture is taught in accordance with the Regulations and approved by the Departmental Inspector of Agriculture and Horticulture will be entitled to an Elementary certificate in Agriculture.

When teachers make application for an Elementary certificate in Agriculture under Section 2 above they should forward with their applications their Lower and Middle School certificates showing their standing in Agriculture, also a statement from the Principal of the School in which they took the course certifying that they have complied with the requirements of Sections 1 and 2 above. When applying for exemption from the first Summer Course under Section 1 above they should submit with their applications their Lower School certificates showing their standing in Agriculture, also a statement from the Principal of the School in which they took the course certifying to the completion of the prescribed course in Agriculture.

NOTE:—Teachers who hold certificates of having passed the complete examination in Agriculture of the Lower and Middle School in 1928 or prior thereto, may, on application, accompanied by their certificates, be granted Interim Elementary certificates in Agriculture. Those who were graduates of a Normal School in 1928 or prior thereto and who at that time had passed either the Lower School or the Middle School examinations in Agriculture, but not both, may fulfil the requirements for the Elementary Certificate in Agriculture by completing one Summer Session.

(2) Candidates who pass the examinations and other tests of Parts I and II of the prescribed course leading to an Intermediate certificate will be granted Interim Intermediate certificates in Agriculture valid in a Public or Separate, High or Continuation School.

(3) Teachers who hold Elementary certificates in Agriculture, and who are qualified in other respects may qualify in an additional Summer Course for the Intermediate certificate in Agriculture.

(4) Candidates who hold Intermediate certificates in Agriculture and certificates in Farm Mechanics, in order to qualify for certificates as Specialists in Agriculture, are required to take the prescribed work of a third Summer Session and the examinations thereon, and to submit a problem in research covering at least the first year following that in which the third Summer School Course was taken.

(5) The course prescribed for the certificate in Farm Mechanics is covered in one Summer Session.